

US EPA ARCHIVE DOCUMENT



# Asbestos Activities In EPA

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# Outline

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- Background
- Current EPA activities on asbestos
- EPA science activities
- Purpose and overview of workshop
- Progress on IRIS assessment



# Libby Mine, Montana

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- Mine History and Characteristics
  - Mine operated from 1920's-1990
  - 150-200 workers at a time (2,000 total)
  - Grace purchased in 1963, closed 1991
    - Produced 80% of world's vermiculite ore mined
    - Asbestos in all vermiculite ore mined
    - Widespread airborne contamination
- Demographics
  - 10, 000 area residents (city 2,600)
  - 2,000 area homes (400 in Libby)



# Libby Burden of Disease

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- EPA/PHS mobilized an emergency response team to Libby on November 22, 1999.
- Regional physicians report hundreds of related deaths, many more sick.
- Medical investigation, funded by EPA, led by PHS and ATSDR:
  - 6,200 individuals screened
  - 19-30% with lung abnormalities
  - 73% of those with lung abnormalities not Grace workers or family members



# Recent Agency Activities

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- Blue Ribbon Panel report (GETF Report)
  - EPA grant to Global Environmental Technology Foundation (GETF)
  - Released on May 16, 2003
- Communication/outreach pamphlet on attic insulation
  - Released on May 21, 2003
- Preliminary study on vermiculite attic insulation
  - Should not be disturbed



# Asbestos Action Plan

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- Improving the state of the science for asbestos
- Identifying and addressing exposure and risk reduction opportunities associated with asbestos in products
- Reducing asbestos exposures through contaminated sites cleanup



# Improving State of the Science

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- Definition of categories of asbestos and asbestos-like fibers for risk assessment
- Evaluation of analytical and measurement procedures
- Assessing toxicity, exposure, and risk assessment for cancer and non-cancer effects of asbestos
- Assessing options to mitigate exposures





# OSWER Scientific Meetings

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- Asbestos Health Effects Conference
  - May 24-25, 2001 (Oakland, CA)
- Asbestos Cancer Risk Peer Consultation
  - February 25-27, 2003 (San Francisco, CA)
  - Final report June 2003
- Asbestos Mechanisms of Toxicity
  - June 12-13, 2003 (Chicago, IL)
  - Focus on molecular mechanisms, pleural disease and exposure response relationships



# Purposes of Workshop

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- Understanding the current state of the science on asbestos toxicity
- Information will be reviewed in creating the Integrated Risk Information System (IRIS) Update
- Discussion of panel questions



# Overview: Mechanisms of Toxicity Workshop

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- Panel 1      Exposure and dose response
- Panel 2      Mechanisms of fiber-inducing lung and pleural disease
- Panel 3      Molecular and biochemical mechanisms of asbestos fiber toxicity



# Limitations of the current Asbestos Toxicity IRIS Summary

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- Toxicologic profiles prepared in 1985/1986
- No definition of “asbestos”
- All fiber types are assumed to have the same potency
- No cancer potency for other site specific cancers i.e., GI cancers
- Uncertainty in conversion from PCM to TEM



# Plan for Developing the Noncancer Health Assessment

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- Identify asbestos fiber types and their mineralogy
- Definition of fibers relevant to toxicity – fiber length and diameter, bioactivity, and chemistry
- Use of mechanistic data for dose response and low-dose extrapolation (if possible)
- Appropriate measure of environmental exposure and internal dose (lung burden)
- Development of RfC and RfD

# Plan for Developing the Cancer Health Assessment



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- Discuss the relative differences in toxicity between fiber types and by fiber size
- Currently six federally regulated fibers are:
  - serpentine
  - amphiboles
- Separate unit risk values for lung cancer, mesothelioma, and other cancer sites
  - a range of potencies for site specific cancers



# Proposed Health Assessment

## Where Are We Now?

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- Asbestos team will write both assessments (noncancer and cancer)
- Peer consultation for the Berman-Crump Model was held in February, 2003
- Revised Berman Crump Model should be available in summer 2004
- Cancer assessment should begin by April 2004
- Noncancer assessment is expected for external peer review by September 1, 2004

# Proposed Health Assessment

## Where Are We Now?

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- Team members are reviewing citations (5,000+) and identifying relevant references
- Epidemiologic study “to better characterize historical asbestos exposures” is being funded
  - The study will take 18 months and will be useful in developing better exposure indices
- Libby noncancer rat inhalation bioassay (amphiboles) is planned
  - Will be helpful for deriving the RfC